

REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Substance of the Interviews

Applicants wish to thank the Examiner for her helpful comments during the personal interview of October 11, 2007 and the telephone interview of November 7, 2007.

During the personal interview of October 11, 2007, Applicants' representative discussed the rejections of record. The Examiner indicated that Applicants' proposed amendments to claims 6, 18-20, 40 and 44-46 would be sufficient to overcome the rejection under 35 U.S.C. § 112, second paragraph.

Applicants also discussed the prior art rejections. The Examiner agreed that the cited references do not disclose the specific reactive functional group X^{*}, as specified in Applicants' claims. The Examiner requested that Applicants provide additional arguments comparing Applicants' recited functional group X with the teachings of the prior art references.

During the telephone interview of November 7, 2007, Applicants' representative discussed the functional and structural differences between Applicants' claims and the teachings of the references. The Examiner indicated that an explanation of these differences would likely overcome the outstanding prior art rejections.

Claim Amendments

Claims 6, 18-20, 40 and 44-46 have been amended to recite contacting the graft polymer side chain with a solution containing a reactive functional group . . . to convert a counter anion attached to the anion exchange group into the reactive functional group. Support for these amendments are found on page 7, line 29 to page 8, line 22, and page 13, line 21 to page 14, line 4 of Applicants' specification. Therefore, no new matter has been added to the application by these amendments.

Rejection of Claims Under 35 U.S.C. § 112, Second Paragraph

The rejection of claims 6, 18, 19, 20, 40, 44, 45 and 46 as being indefinite under 35 U.S.C. § 112, second paragraph has been rendered moot in view of the claim amendments, discussed above. Specifically, the amended claims clearly describe the step of converting the anion exchange group into a reactive functional group.

Patentability Arguments

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Rejections Under 35 U.S.C. § 103(a)

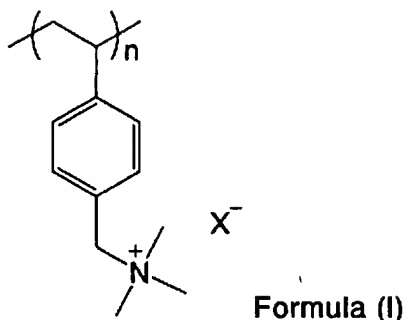
The rejection of claims 2-4, 6, 12-14, 18-21 and 35 under 35 U.S.C. § 103(a) as being unpatentable over Komatsu et al. or Sugo et al., as well as the rejection of claims 36-47 under 35 U.S.C. § 103(a) as being unpatentable over Sugo et al. or Andreola et al. are respectfully traversed.

Initially, Applicants direct the Examiner's attention to the Statement of Common Ownership regarding the Komatsu et al. reference, submitted concurrently herewith. Accordingly, the rejection incorporating this reference is no longer tenable.

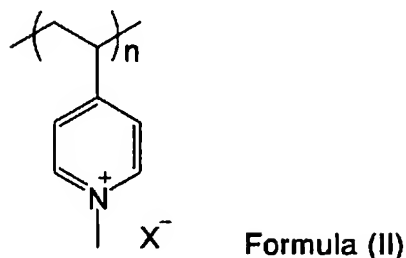
The Examiner clearly admits that neither Sugo et al. (page 5, lines 11-12 of the Office Action) nor Andreola et al. (page 6, lines 11-12 of the Office Action) disclose the reactive functional group X⁻, as required by Applicants' claims. Applicants' claims are not rendered obvious by the cited references for the following reasons.

1) Difference in structure

Applicants' claimed solid reagent has a formula I:



or a formula II:



wherein X^- is a reactive functional group selected from the group consisting of hypochlorite ion (ClO^-), periodate ion (IO_4^-), chromate ion (CrO_4^{2-}), dichromate ion ($\text{Cr}_2\text{O}_7^{2-}$), perruthenate ion (RuO_4^-), tetrahydroborate ion (BH_4^-), cyanotrihydroborate ion, tribromide ion (Br_3^-), cyanide ion, thiocyanate ion, azide ion and nitrite ion.

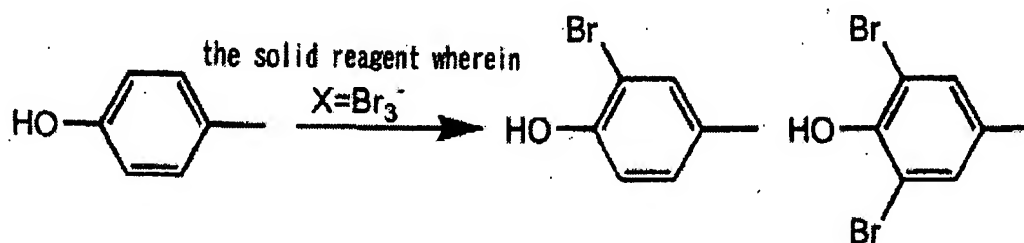
The ion exchange membranes disclosed in the cited references are anion exchange membranes having Formula 1 or 2 wherein X^- is Cl^- or OH^- , or cation exchange membranes having sulfonic group, carboxylic group or the like.

Accordingly, it is clear that Applicants' claimed solid reagent differs from the ion exchange membranes of the cited references, at least in the kind of X^- .

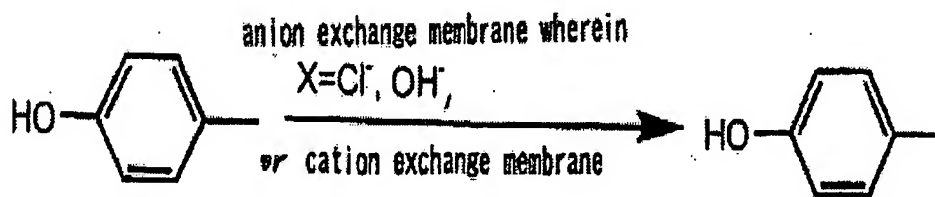
2) Difference in function

Applicants' claimed solid reagents having particular X^- groups function differently from the anion or cation exchange membranes of the references, as described in detail below.

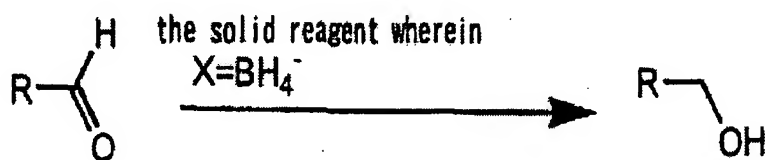
Please refer to Example 2 of Applicants' specification (page 14, line 15). When X^- is Br_3^- , the claimed solid reagent halogenates *p*-cresol into 2-bromo-4-methylphenol and 2,6-dibromo-4-methyl phenol, as follows:



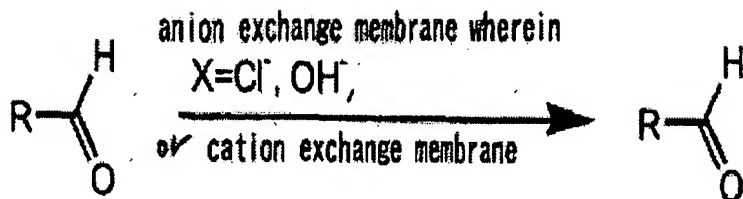
On the other hand, the anion exchange membranes or cation exchange membranes disclosed in the references give no changes in *p*-cresol, as follows:



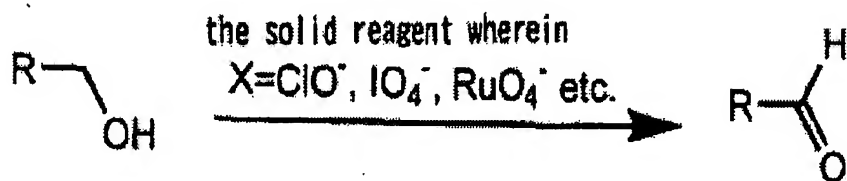
Please also refer to Example 4 of Applicants' specification (page 17, line 12). When X^- is BH_4^- , the claimed solid reagent reduces benzaldehyde to benzyl alcohol, as follows:



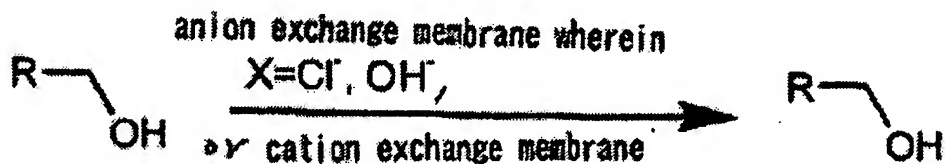
On the other hand, the anion exchange membranes or cation exchange membranes disclosed in the references give no changes in benzaldehyde, as follows:



Likewise, when X⁻ is ClO⁻, IO₄⁻, RuO₄⁻, or the like, the claimed solid reagent oxidizes benzyl alcohol to benzaldehyde, as follows:



while the ion exchange membranes of the references induce no reaction, as follows:



As illustrated above, the solid reagent of the presently claimed invention may function as a halogenating agent, reducing agent, oxidizing agent, and the like, while the ion exchange membranes of the references cannot.

Further, the ion exchange membranes of the references, which are used as a filter, can absorb HF (when the membranes contain anion exchange groups) or ammonia (when the membranes contain cation exchange groups), etc. (Please refer to Examples 1 and 2 of Sugo et al.) On the contrary, the solid reagent of the presently claimed invention having particular X⁻ does not absorb HF, ammonia, etc.

Thus, the function of Applicants' claimed solid reagent containing particular X⁻ groups is different from those of the ion exchange membranes disclosed in the references.

3) Conclusion

Both the structure and the function of the claimed solid reagent differ from those of the disclosed ion exchange membranes. A person skilled in the art would not conceive of the claimed solid reagent from the teachings of Sugo et al. or Andreola et al., each of which merely discloses ion exchange membranes functioning differently from the claimed reagent.

For these reasons, the invention of Applicants' pending claims is clearly patentable over the cited references.

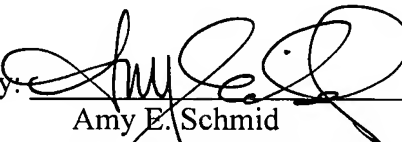
Conclusion

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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